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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/766,139	01/19/2001	Jouni Kossi	NC19034 (NOKI09-19034	9493

7590 07/23/2004

BROWN RAYSMAN MILLSTEIN FELDER & STEINER,LLP
900 Third Avenue
New York, NY 10022

EXAMINER

WILSON, ROBERT W

ART UNIT	PAPER NUMBER
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2661

10

DATE MAILED: 07/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/766,139

Applicant(s)

KOSSI ET AL.

Examiner

Robert W Wilson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 January 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10-15, 19 and 20 is/are rejected.
- 7) ☒ Claim(s) 9, 16-18, 21 and 22 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 January 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 9.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

1.0 The application of Kossi et. al. entitled "APPARATUS AND ASSOCIATED METHOD FOR DYNAMICALLY SELECGING FREQUENCY LEVELS UPON WHICH TO DEFINE COMMUNICATION CHANNEL IN A RADIO COMMUNICATION SYSTEM" filed on 01/19/2001 was examined. Claims 1-22 are pending.

Claim Rejections - 35 USC § 112

2.0 The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 6 is rejected relative to 112 2nd paragraph because the metes and bounds of the claims cannot be assessed.

Referring to **Claim 6**, the applicant claims "lowest maximum noise level" which is indefinite. What is mean by "lowest maximum noise level"?

Claim Rejections - 35 USC § 103

3.0 The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4.0 **Claims 1-8, 10-15, & 19-20** are rejected under 35 U.S.C. 103(a) as being unpatentable over Sonetaka (EP 1 009 182 A2 dated 14.06.2000) which is an IDS document of record.

Referring to **Claim 1**, Sonetaka (EP 1 009 182 A2 dated 14.06.2000) teaches: In a wireless mesh network having a first node second node and a network management station (1st Slave station or first node 2nd slave station or second node and a master or management station which are in a wireless mesh network per Fig 4 or Pg 5 line 34-Pg 6 line 5), the first and at least second nodes and the network management station intercoupled theretogether to permit communications therebetween (1st Slave station or first node 2nd slave station or second node and a master or management station which are coupled via wireless network per Fig 4 or Pg 5 line 34-Pg 6 line 5) an improvement apparatus for dynamically selecting frequency level at which to define communication channels upon which to effectuate communications during operation of the

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wireless mesh network (The master or improvement apparatus collects interference level on channels or frequencies from the slaves assigns channel or frequency based upon interference level per Fig 4 or Pg 5 line 34-Pg 6 line 5) said apparatus comprising:

A frequency level quality indicia measurer positioned at each of the first and at least second nodes, said frequency level quality-indicia measurer for measuring communication quality indicia at a selected plurality of different global frequency levels at the node at which each of said frequency level quality indicia measurers is positioned and for generating a report representative of values of the communication quality indicia measured thereat (The applicant's specification defines measurement of noise level or interference as an example of what is measured by a quality indicia measurer per pg 7 line 13-pg 9 line 4. The slave stations or nodes measure interference on channels plurality of global frequency levels per Fig 4 or Pg 5 line 34-Pg 6 line 5)

A global channel selection positioned at the network management station and coupled to receive report generated by each of said frequency level quality-indicia measure, said global channel selector for selecting a first global frequency level at which to define a first global communication channel upon which to communicate first global communication signals with, and between all of the first and at least second nodes (The master or network management station receives interference level information or reports or measured values of frequency level quality-indicia from the slaves and assigns or selects a channel for all slave stations or global channel upon which to communicate)

Sonetaka (EP 1 009 182 A2 dated 14.06.2000) does not expressly call for: frequency level measurer or global channel selector in a network management station but teaches a slave station which measures interference levels and a master which assigns a channel for use by all stations.

It would have been obvious to one of ordinary skill in the art at the time of the invention that the slave station performs the same function as a frequency level measurer and the master station performs the same function as a global channel selector.

In Addition:

Regarding **Claim 2**, wherein the communication quality indicia measurer measures noise levels at each of the selected plurality of different global frequency levels and wherein the reports generated thereat contain listing of values of noise levels measured at different global frequency levels (The reference teaches the master poles the slaves for interference information on specific channel basis; therefore, the listing contain values of noise measured at different global frequency basis per Fig 4 or Pg 5 line 34-Pg 6 line 5.)

Regarding **Claim 3**, wherein selection by said channel selector of the first frequency level at which to define the first communication channel is made responsive to the listing of the values of noise level measured at the different global frequency levels at the first and at least second nodes (The reference teaches the master poles the slaves for interference information on a specific channel basis per Fig 4 or Pg 5 line 34-Pg 6 line. It would have been obvious to one of ordinary

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skill in the art at the time of the invention that the master determines the optimum channel or frequency on the basis of list of interference measurements based upon different channel measurement provided by the slaves)

Regarding **Claim 4**, wherein the frequency level selected by said global channel selector from amongst the plurality of different global frequency levels to form the first frequency level comprises the frequency level which exhibits minimal noise levels according to a selected criteria (The reference teaches optimum assignment of radio channel per Abstract and the master making decision based upon interference information. It would have been obvious to one of ordinary skill in the art at the time of the invention that an optimum channel would be the channel with a minimal interference or noise value per Abstract and per Fig 4 and per Pgs 5 line 34-Pg 6 line 5)

Regarding **Claim 5**, wherein the selected criteria according to which said global channel selector determines the first frequency level to exhibit the minimal noise levels comprises the lowest average noise levels (The primary reference teaches selection of a optimum channel based upon interference measurement. The examiner takes official noise that estimating RSSI based upon Interference level is well known in the art per EP 0 817 521 which is an IDS document of record and which teaches estimating average values of RSSI per Pg 4 line22-Pg 6 line 10. It would have been obvious to one of ordinary skill in the art at the time of the invention to estimate the average value of interference to determine RSSI in order to select an optimum channel)

Regarding **Claim 6**, wherein the selected criteria according to which said global channel selector determined the first frequency level to exhibit the minimal noise levels comprises the lowest maximum noise level (The primary reference teaches selection of a optimum channel based upon interference measurement. The examiner takes official noise that estimating min maximum RSSI based upon Interference level is well known in the art per EP 0 817 521 which is an IDS document of record and which teaches estimating average values of min max value of RSSI per Pg 4 line22-Pg 6 line 10. It would have been obvious to one of ordinary skill in the art at the time of the invention to estimate the minimal noise levels comprises the lowest maximum noise level in order to select a optimum channel)

Regarding **Claim 7**, wherein the first communication channel defined at the first frequency level selected by said channel selector comprises a control channel upon which to communicate control signals with the first and at least second nodes (The reference teaches the master poles the slaves for interference information on specific channel basis per Fig 4 or Pg 5 line 34-Pg 6 line 5. A control channel is the most important channel utilized between the master and the slave stations. It would have been obvious to one of ordinary skill in the art at the time of the invention to select an optimum control channel in order for the invention to work)

Regarding **Claim 8**, wherein data communications are selectably effectualbe by the first and at least second nodes, and wherein measurement made by said frequency level quality indicia meausrer are made during time periods absent of data communication by the first and at least a second node (The applicant has broadly claimed "during time periods absent of communication").

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The examiner has interpreted “during time periods absent of communication” to mean that the slave is measuring received interference levels when it is not transmitting on a specific channel. It would have been obvious to one of ordinary skill in the art at the time of the invention to measure interference level in a channel when the slave was not transmitting per Fig 4 or Pg 5 line 34-Pg 6 line 5)

Regarding **Claim 10**, wherein said frequency level quality indicia measurer further remeasures the communication quality indicia at selected intervals (The applicant broadly claims “remeasures at selected intervals”. The examiner has interpreted the master poling the slave for a measurement as “remeasurement at selected intervals per Fig 4 or Pg 5 line 34-Pg 6 line 5)

Regarding **Claim 11**, wherein the global channel selector further selects the first frequency level at which to define the first communication channel responsible to remeasurements made by said frequency level quality indicia measurer (The master or global channel selector poling the slave for a measurement measurements or remeasurments per Fig 4 or Pg 5 line 34-Pg 6 line 5)

Regarding **Claim 12**, wherein measurements made by said frequency level quality indicia measurer are made automatically at selected intervals (The applicant broadly claims “automatically”. The reference teaches that the master node poles the slave for interference level on a specific channel per Fig 4 or Pg 5 line 34-Pg 6 line 5. It would have been obvious to one of ordinary skill in the art at the time of the invention for the slave to automatically measure the interference all of the time and then just send the interference value when it is poled in order to shorten the response time.)

Regarding **Claim 13**, wherein measurements made by said frequency level quality indicia measurer are made response to requests therefor (The reference teaches that the master node poles the slave for interference level on a specific channel per Fig 4 or Pg 5 line 34-Pg 6 line 5.)

Regarding **Claim 14**, wherein the request for the measurement responsive to which said frequency level quality indicia measurer makes measurements, are generated at the network management station (The reference teaches that the master node poles the slave for interference level on a specific channel per Fig 4 or Pg 5 line 34-Pg 6 line 5)

Regarding **Claim 15**, wherein said frequency level quality indicia measurer position each of the first and at least second nodes further selectable measure communication quality indicia at a selected plurality of different local frequency levels (The applicant broadly claims “local frequency levels”. The examiner has interpreted channel which are commonly used by the master and slave stations as local frequency levels. The reference teaches that the slaves measure interference in channels commonly used of local frequency levels per Fig 4 or Pg 5 line 34-Pg 6 line 5)

Regarding **Claim 19**, wherein at least portions of frequency ranges within which the different global frequency levels are located and of frequency ranges within which the different local frequency levels are located overlap (The reference teaches measuring interference in channels

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which can be utilized as local and or global channels per Fig 4 or Pg 5 line 34-Pg 6 line 5. It would have been obvious to one of ordinary skill in the art at the time of the invention that these channels overlap)

Referring to **Claim 20**, Sonetaka (EP 1 009 182 A2 dated 14.06.2000) teaches: In a method for communicating in a wireless mesh network, and a network management station, the first and at least the second nodes and the network management station intercoupled theretogether to permit communications therebetween, (The slave stations are the first and second nodes which are connected to the master or network management station and are intercoupled via wireless per Fig 4 or Pg 5 line 34-Pg 6 line 5), an improvement of a method for dynamically selecting frequency levels at which to define communication channels upon which to effectuate communication during operation of the wireless mesh network (The master dynamically assigns channels or frequency levels based upon interference level information in the wireless network per Fig 4 or Pg 5 line 34-Pg 6 line 5) said method comprising:

Measuring communication quality indicia at a selected plurality of different global frequency levels at each of the first and at least second nodes (The applicant's specification defines measurement of noise level or interference as an example of what is measured by a quality indicia measurer per Pg 7 line 13-pg 9 line 4. The slave stations or nodes measure interference on channels plurality of global frequency levels per Fig 4 or Pg 5 line 34-Pg 6 line 5)

Generating reports representative of values of communication quality indicia measured during said operation of measuring (The Master collects interference level information or communication quality indicia measured by slaves per Fig 4 or Pg 5 line 34-Pg 6 line 5)

Selecting a global frequency level at which to define a first global communication channel upon which to communicate first global communication signals with and between, all of the first and at least second nodes (The master assigns a communication channel to all of the slaves per Fig 4 or Pg 5 line 34-Pg 6 line 5)

Sonetaka (EP 1 009 182 A2 dated 14.06.2000) does not expressly call for: measuring communication quality indicia, generating reports, or selecting a global frequency level but teaches measuring interference, providing interference information and assigning a channel.

It would have been obvious to one of ordinary skill in the art at the time of the invention that the measuring interference level is the same function as measuring communication quality indicia, providing interference information is the same function as generating reports, and assigning a channel is the same function as selecting a global frequency level

Specification

5.0 The examiner objects to the title because it is too long. The following title is suggested:

Method for dynamically selecting a channel based upon measured interference level.

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Claim Objections

6.0 **Claims 9, 16-18, & 21-22** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The present invention is directed to a system which measures interference on a global level and based upon the interference level selects a global control channel. This system also measures interference on a local level separately and selects a common local channel.

The closest prior art is Sonetaka (EP 1 009 182 A2 dated 14.06.2000) which is also an IDS document of record. Sonetaka (EP 1 009 182 A2 dated 14.06.2000) discloses a system which determines an optimum channel for the system based upon interference level but does not differentiate selection of a control channel from a local channel.

The closest prior art Sonetaka (EP 1 009 182 A2 dated 14.06.2000) does not singularly or in combination anticipate or render the following claim limitation obvious when rewritten in independent form including all of the limitations of the base claim and any intervening claims:

“Control slots forming time slots during which only control signals are generated” as claimed in **Claim 9**.

“Local channel selector “as claimed in **Claims 16-18**

“local frequency levels” as claimed in **Claims 21-22**.

Conclusion

7.0 The following prior art which is relevant to this rejection but was not used is:

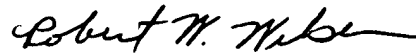
Gray (U.S. Patent No.: 6,675,012 dated 1/6/04) which discloses a wireless system which has a control hub that receives reports from a mobile and selects a frequency range.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert W Wilson whose telephone number is (703) 305-4703. The examiner can normally be reached on M-F (8:00-4:30).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas Olms can be reached on (703) 305-4703. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.



Robert W Wilson
Examiner
Art Unit 2661

RWW
July 15, 2004



DANIEL
RECEPTIONIST